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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/991,526 | 11/21/2001 | Radomir Mech | MS1-1032US | 3095 |

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SPOKANE, WA 99201

EXAMINER

ARNOLD, ADAM

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2671

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DATE MAILED: 04/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/991,526

Applicant(s)

MECH ET AL.

Examiner

Adam Arnold

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 January 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-27 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 8 and 10.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

The examiner acknowledges the receipt and entry of the applicant's amendment.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-17 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollis, U.S. Patent No. 6,580,430. Referring to claim 1, Hollis discloses a method comprising determining a distance between a user to boundaries of a gaseous volume (col. 10, lines 4-5) and storing distance information (col. 12, lines 33-34). Hollis does not explicitly disclose storing this information in an alpha channel. At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to store fog boundary information in an alpha channel. One of ordinary skill in the art would have been motivated to do this because regardless of the name being applied ("alpha channel" in this case), it is just a device being used to store graphics data.

Referring to claim 2, Hollis discloses blending a color pixel outside the gaseous volume with a color pixel inside the volume based on the distance information (col. 12, lines 40-49).

Referring to claim 3, Hollis discloses adding and subtracting a distance from the user to the front and back faces of the gaseous volume (col. 10, lines 4-5).

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Referring to claim 4, Hollis discloses where storing the distances comprises calculating a total travel distance through the gaseous volume (col. 12, line 48).

Referring to claim 5, Hollis discloses displaying the blended pixel on a display screen (col. 5, line 52).

Referring to claim 6, Hollis discloses where the gaseous volume is a 3D bounded volume (col. 3, line 35).

Referring to claim 7, Hollis discloses one or more computer-readable media comprising computer-executable instructions (col. 6, line 47).

Referring to claim 8, Hollis further discloses a fog unit, configured to receive the travel distance and convert the data to a fog factor (col. 9, lines 60-67).

Referring to claim 9, Hollis discloses a frame buffer to store pixel data (col. 9, line 39).

Referring to claim 10, the remarks presented with respect to claims 5 and 9, above, apply equally to this claim.

Referring to claim 11, the remarks presented with respect to claims 3 and 4, above, apply equally to this claim.

Referring to claim 12, Hollis discloses where the system might be a flight simulator (col. 3, line 21).

Referring to claim 13, Hollis discloses where the system is a video game system (col. 6, line 49).

Referring to claim 14, the remarks presented with respect to claim 1, above, apply equally to this claim.

Referring to claim 15, the remarks presented with respect to claim 1, above, apply equally to this claim.

Referring to claim 16, the remarks presented with respect to claim 2, above, apply equally to this claim.

Referring to claim 17, the remarks presented with respect to claim 14, above, apply equally to this claim.

Referring to claim 19, the remarks presented with respect to claims 1 and 3, above, apply equally to this claim.

3. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hollis, in view of Deering, U.S. Patent Publication No. US 2001/0030648 A1. Hollis does not disclose scaled total travel distance throughout the 3D volume. Deering discloses a graphics system to render 3D objects obscured by fog where the fog depends on the radial distance from the object to the viewpoint (paragraph 20) including scaling the object (paragraph 56). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to provide scaling factors. One of ordinary skill in the art would have been motivated to do this in order to provide the user with more control over manipulation of the object. Although Deering provides for object scaling (i.e. stretching or shrinking) as opposed to distance scaling, the two both provide the user with control over the graphics space.

4. Claims 20-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hollis in view of Dorbie. Referring to claim 20, Hollis further discloses texture data stored in memory (col. 9, lines 27-30). Hollis does not disclose where this texture data is 1-dimensional. Dorbie, U.S. Patent No. 6,545,685, discloses polygons with one-dimensional texture to control brightness

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(col. 9, lines 1-3). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art for the texture in this case to be one-dimensional rather than 2-dimensional. One of ordinary skill in the art would have been motivated to do this because as pointed out in this case, the texture data can provide color, alpha and depth information, which is similar to the brightness data of Dorbie.

Referring to claim 21, Hollis discloses where the graphics subsystem includes texture coordinate generator (col. 9, line 23).

Referring to claim 22, the remarks presented with respect to claim 21, above, apply equally to this claim (where a “texgen” is defined at page 9 of the specification to be a “texture coordinate generator”).

Referring to claim 23, the remarks presented with respect to claims 7 and 20, above, apply equally to this claim.

Referring to claim 24, the remarks presented with respect to claims 1 and 3, above, apply equally to this claim.

Referring to claim 25, the remarks presented with respect to claim 24, above, apply equally to this claim.

Referring to claim 26, Hollis provides where the back face distance information is stored only for pixels inside a volume region of fog (col. 10, lines 4-5).

Referring to claim 27, the remarks presented with respect to claim 3, above, apply equally to this claim.

Response to Arguments

1. Applicant's arguments filed January 27, 2004 have been fully considered and are unpersuasive. Regarding the rejection to claim 1, the applicant argues (beginning on the first paragraph of page 25) that "alpha" as used by Hollis refers to angular deviation, while in this case it refers to distance data, and it would be erroneous to interchange them. The examiner disagrees with this contention. The "alpha" referred to by the examiner (see Hollis, col. 9, lines 30-35) refers to overlaying colors ("modulation") and is apparently different from the " α " referred to by the applicant. The examiner has pointed to a different section of the Hollis reference above that teaches storing distance information (col. 12, lines 33-34). This further supports the motivation provided by the examiner in the claim 1 rejection above. That is, regardless of the nomenclature, it is merely a device for storing graphical data.

Regarding the rejection to claim 18, in the last paragraph on page 31, the applicant argues at the top of page 29 that Hollis and Deering are concerned with angular deviation and neither is concerned with travel distance information. The applicant is directed to column 10, line 2, which states "the fog equation provides a constant increase in fog density between a starting point where the linear fog begins and an ending point where the fog reaches its maximum value."

Regarding the rejection to claim 20, the applicant appears to repeat the argument for the rejection to claim 1 above. Finally, the applicant cites the MPEP regarding 103 rejections and states that the 3-prong test is not met for all the rejections. Because the applicant fails to cite specific examples, the examiner stands by the rejections given above.

The rejections to these claims stand.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Adam Arnold** whose telephone number is **703-305-8413**. The examiner can normally be reached Monday-Thursday and alternate Fridays between 7:00 AM and 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Zimmerman, can be reached at (703) 305-9798.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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or faxed to:

(703) 872-9314 (for Technology Center 2600 only)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding
should be directed to the Technology Center 2600 Customer Service Office whose telephone
number is (703) 306-0377.



MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600